AMENDMENTS TO THE CLAIMS:

Please cancel claims 1 to 32 as presented in the underlying International Application No. PCT/EP2004/012011 without prejudice. Please add new claims as indicated in the listing of claims below. This listing of claims will replace all prior versions, and listings, of claims in the application:

LISTING OF CLAIMS:

Claims 1 to 32 (canceled).

Claim 33 (new): A combined sensor and heating element comprising:

a sensor mat including a heating conductor system with heating conductors, a carrier film having a surface, and a sensor system having sensor printed conductors on the surface, the heating conductors being situated on the surface between and/or neighboring the sensor printed conductors,

the sensor mat defining a flexible printed conductor film.

Claim 34 (new): The combined sensor and heating element as recited in claim 33 wherein the sensor system includes seat-occupant detection sensors or temperature sensors.

Claim 35 (new): The combined sensor and heating element as recited in claim 34 wherein the heating conductor system may be switched or controlled using the seat-occupant detection sensors.

Claim 36 (new): The combined sensor and heating element as recited in claim 34 wherein a signal of the seat-occupant sensors is usable for airbag control.

Claim 37 (new): The combined sensor and heating element as recited in claim 33 wherein the sensor system or seat-occupant detection sensors include pressure sensors.

Claim 38 (new): The combined sensor and heating element as recited in claim 37 wherein the pressure sensors include film switches.

Claim 39 (new): The combined sensor and heating element as recited in claim 33 wherein the heating conductors include printed conductors made of the same material as the sensor printed conductors.

Claim 40 (new): The combined sensor and heating element as recited in claim 39 wherein the same material is copper or conductive paste.

Claim 41 (new): The combined sensor and heating element as recited in claim 33 further comprising a protective layer over the heating conductor system and the sensor system.

Claim 42 (new): The combined sensor and heating element as recited in claim 41 wherein the protective layer includes a plastic film or a nonwoven material layer.

Claim 43 (new): The combined sensor and heating element as recited in claim 33 wherein the carrier film includes a flexible plastic film.

Claim 44 (new): The combined sensor and heating element as recited in claim 43 wherein the plastic film is made of PI (polyimide), PET (polyethylene terephthalate), or PEN (polyethylene naphthalate).

Claim 45 (new): The combined sensor and heating element as recited in claim 33 wherein electrical terminals of the heating conductor and the sensor system are situated on the carrier film so the heating conductor and the sensor system are connectable to a same connection plug.

Claim 46 (new): The combined sensor and heating element as recited in claim 33 wherein the heating conductor system and the sensor system are connectable to shared analysis and power supply electronics.

Claim 47(new): The combined sensor and heating element as recited in claim 33 wherein the sensor mat includes wiring to analysis and power supply electronics.

Claim 48 (new): The combined sensor and heating element as recited in claim 33 wherein the sensor mat includes integrated diodes, switches, or other electronic components.

Claim 49 (new): The combined sensor and heating element as recited in claim 33 wherein the sensor mat is divided into zones, each zone being switched, controlled, or regulated independently.

Claim 50 (new): A vehicle seat comprising at least one combined sensor and heating element as recited in claim 33.

Claim 51 (new): The vehicle seat as recited in claim 50 wherein the seat has a surface or backrest with heating zones, the heating zones being switched, controlled or regulated independently.

Claim 52 (new): The vehicle seat as recited in claim 50 wherein the heating zones are tailored to a contour of a human body located on the seat.

Claim 53 (new): A method for manufacturing a combined sensor and heating element as recited in claim 33 comprising the step of:

applying at least partially the sensor printed conductors to the carrier film using a conductive paste printing method.

Claim 54 (new): The method as recited in claim 53 wherein a conductor layout includes wiring of a combined sensor and heating element to an analysis or power supply electronics.

Claim 55 (new): The method as recited in claim 53 wherein the sensor printed conductors are laminated onto the carrier.

Claim 56 (new): A method as recited in claim 53 further comprising the step of applying a protective layer to the flexible printed conductor film.

Claim 57 (new): The method as recited in claim 56 wherein the protective layer is laminated on.

Claim 58 (new): The method as recited in claim 56 wherein the protective layer is made of a plastic film or a nonwoven material.

Claim 59 (new): The method as recited in claim 53 wherein the carrier film is a plastic film made of PI (polyimide), PET (polyethylene terephthalate), or PEN (polyethylene naphthalate).

Claim 60 (new): A method for manufacturing a combined sensor and heating element as recited in claim 33 comprising the steps of:

applying a coating made of a printed conductor material to the carrier film,

applying an etch resist coating, in a pattern corresponding to a desired conductor layout, to the coating made of the printed conductor material,

etching away the coating made of the printed conductor material in areas not having the etch resist coating; and

removing the etch resist coating, the remaining printed conductor material defining at least partially the sensor printed conductor material.

Claim 61 (new): The method as recited in claim 60 wherein the conductor layout includes wiring of the combined sensor and heating element to the analysis or power supply electronics.

Claim 62 (new): The method as recited in claim 60 wherein the printed conductor material is laminated onto the carrier.

Claim 63 (new): The method as recited in claim 60 wherein the printed conductor material is copper.

Claim 64 (new): The method as recited in claim 63 further comprising the steps of:

cleaning the copper coating; and

etching initially before applying the etch resist coating.

Claim 65 (new): The method as recited in claim 60 wherein the step of applying the etch resist coating includes printing on the etch resist coating.

Claim 66 (new): The method as recited in claim 60 wherein the step of removing the etch resist includes flushing using an alkaline solution.

Claim 67 (new): The method as recited in claim 60 further comprising the step of applying a protective layer to a finished printed conductor structure.

Claim 68 (new): The method as recited in claim 60 wherein the protective layer is laminated on.

Claim 69 (new): The method as recited in claim 60 wherein the protective layer is made of a plastic film or a nonwoven material.

Claim 70 (new): The method as recited in claim 60 wherein the carrier film is a plastic film made of PI (polyimide), PET (polyethylene terephthalate), or PEN (polyethylene naphthalate).